

File 441:ESPICOM Pharm&Med DEVICE NEWS 2006/Mar W1  
 (c) 2006 ESPICOM Bus.Intell.  
 File 16:Gale Group PROMT(R) 1990-2006/Aug 21  
 (c) 2006 The Gale Group  
 File 160:Gale Group PROMT(R) 1972-1989  
 (c) 1999 The Gale Group  
 File 149:TGG Health&Wellness DB(SM) 1976-2006/Aug W1  
 (c) 2006 The Gale Group  
 File 148:Gale Group Trade & Industry DB 1976-2006/Aug 21  
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 File 621:Gale Group New Prod.Annou.(R) 1985-2006/Aug 21  
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 File 635:Business Dateline(R) 1985-2006/Aug 22  
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 File 636:Gale Group Newsletter DB(TM) 1987-2006/Aug 21  
 (c) 2006 The Gale Group  
 File 129:PHIND(Archival) 1980-2006/Aug W2  
 (c) 2006 Informa UK Ltd  
 File 135:NewsRx Weekly Reports 1995-2006/Aug W2  
 (c) 2006 NewsRx  
 File 369:New Scientist 1994-2006/Jul W3  
 (c) 2006 Reed Business Information Ltd.  
 File 370:Science 1996-1999/Jul W3  
 (c) 1999 AAAS

Set	Items	Description
S1	79863	CAPSULE? ? OR MICROCAPSULE? ?
S2	17239	(ACOUSTIC OR ULTRASONIC OR ULTRASOUND OR RF OR RADIOFREQUENCY OR RADIO()FREQUENCY) (1W) (SIGNAL? ? OR TRANSDUCER? ? OR TRANSMITTER? OR TRANSMISSION?)
S3	10499773	TIME OR TIMING
S4	133175	GASTROINTESTINAL OR GASTRO()INTESTINAL OR (DIGESTIVE OR GI- ) ()TRACT? ? OR COLON OR DUODEN?? OR ILEUM OR JEJUN??
S5	121972	ESOPHAG? OR DIVERTICUL? OR PHARYN???? OR PYLOR?? OR RECTAL OR RECTUM OR STOMACH? ? OR GASTRIC
<b>S6</b>	<b>3</b>	<b>S1(S)S2(S)S3 [not relevant]</b>
S7	0	S6(S)S4:S5
S8	0	S6 AND S4:S5
S9	362199	ACOUSTIC OR ULTRASONIC OR ULTRASOUND OR RF OR RADIOFREQUENCY OR RADIO()FREQUENCY
S10	106	S1(5N)S9
S11	12	S10(S)S3
<b>S12</b>	<b>2</b>	<b>S11 AND S4:S5 [not relevant]</b>
S13	8	S11 NOT (S6 OR S12)
<b>S14</b>	<b>4</b>	<b>RD (unique items) [not relevant]</b>

File 155:MEDLINE(R) 1950-2006/Aug 21  
 (c) format only 2006 Dialog  
 File 5:Biosis Previews(R) 1969-2006/Aug W2  
 (c) 2006 The Thomson Corporation  
 File 73:EMBASE 1974-2006/Aug 22  
 (c) 2006 Elsevier B.V.  
 File 94:JICST-EPlus 1985-2006/May W2  
 (c)2006 Japan Science and Tech Corp(JST)  
 File 144:Pascal 1973-2006/Jul W5  
 (c) 2006 INIST/CNRS  
 File 65:Inside Conferences 1993-2006/Aug 22

(c) 2006 BLDSC all rts. reserv.  
File 431:MediConf: Medical Con. & Events 1998-2004/Oct B2  
(c) 2004 Dr. R. Steck  
File 2:INSPEC 1898-2006/Aug W2  
(c) 2006 Institution of Electrical Engineers  
File 6:NTIS 1964-2006/Aug W2  
(c) 2006 NTIS, Intl Cpyrght All Rights Res  
File 8:Ei Compendex(R) 1970-2006/Aug W2  
(c) 2006 Elsevier Eng. Info. Inc.  
File 34:SciSearch(R) Cited Ref Sci 1990-2006/Aug W2  
(c) 2006 The Thomson Corp  
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec  
(c) 2006 The Thomson Corp  
File 315:ChemEng & Biotec Abs 1970-2006/Jul  
(c) 2006 DECHEMA  
File 357:Derwent Biotech Res. \_1982-2006/Aug W2  
(c) 2006 The Thomson Corp.  
File 358:Current BioTech Abs 1983-2006/Jan  
(c) 2006 DECHEMA  
File 285:BioBusiness(R) 1985-1998/Aug W1  
(c) 2006 The Thomson Corporation

Set	Items	Description
S1	214890	CAPSULE? ? OR MICROCAPSULE? ?
S2	121712	(ACOUSTIC OR ULTRASONIC OR ULTRASOUND OR RF OR RADIOFREQUENCY OR RADIO()FREQUENCY) (1W) (SIGNAL? ? OR TRANSDUCER? ? OR TRANSMITTER? OR TRANSMISSION?)
S3	10092015	TIME OR TIMING
S4	1670442	GASTROINTESTINAL OR GASTRO()INTESTINAL OR (DIGESTIVE OR GI- )()TRACT? ? OR COLON OR DUODEN?? OR ILEUM OR JEJUN??
S5	1745754	ESOPHAG? OR DIVERTICUL? OR PHARYN???? OR PYLOR?? OR RECTAL OR RECTUM OR STOMACH? ? OR GASTRIC
S6	35	S1 AND S2 AND S3
S7	8	S4:S5 AND S6
S8	5	RD (unique items) [not relevant]
S9	27	S6 NOT S7
S10	17	RD (unique items)
S11	17	Sort S10/ALL/PY,A
S12	1876932	ACOUSTIC OR ULTRASONIC OR ULTRASOUND OR RF OR RADIOFREQUENCY OR RADIO()FREQUENCY
S13	447	S1(3N)S12
S14	9	S13 AND S3 AND S4:S5
S15	5	S14 NOT S6
S16	4	RD (unique items)

11/7/1 (Item 1 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2006 Institution of Electrical Engineers. All rts. reserv.

01285674 INSPEC Abstract Number: B71028119

**Title: A long term remote intragastric pH, temperature, mobility and electrical activity monitoring system**

Author(s): Wise, L.; Jones, P.W.; Womack, G.J.; Ballinger, W.F.

Author Affiliation: Washington Univ. School of Medicine, St. Louis, MO, USA

Conference Title: 1970 International Telemetering Conference p.116-21

Publisher: Internat. Found. Telemetering, Woodland Hills, CA, USA

Publication Date: 1970 Country of Publication: USA x+577 pp.

Conference Sponsor: Internat. Found. Telemetering: Instrum. Soc. America;  
Electron Industries Assoc., Instrum. Recording Equipment Section  
Conference Date: 13-15 Oct. 1970 Conference Location: Los Angeles, CA,  
USA

Language: English Document Type: Conference Paper (PA)  
Treatment: New Developments (N)

Abstract: The system under development can monitor intragastric physiological changes over time periods exceeding fourteen days. The sensor **capsule** utilizes a pH sensitive glass electrode with wet reference, a thermistor, a solid state pressure sensitive transducer, and impedance matching electronics which develop the physically related electrical signals. Signal acquisition is via tether hardline to the multichannel telemetry unit and subsequent **RF transmission** to a central data receiving system for display and storage. Automatic titration functions, a myograph to record voluntary muscle movement, and the measurement of skin resistance as an indicator of stress, may also be included in the telemetry data. (13 Refs) Subfile: A B

11/7/4 (Item 4 from file: 2)

DIALOG(R) File 2:INSPEC

(c) 2006 Institution of Electrical Engineers. All rts. reserv.

04912906 INSPEC Abstract Number: A91082700, B91047520

**Title: Microballoon as ultrasonic sensor-actuator in vivo**

Author(s): Ishihara, K.; Tanouchi, J.; Kitabatake, A.

Author Affiliation: Japan Soc. of Precision Eng., Tokyo, Japan

Journal: Journal of the Japan Society of Precision Engineering vol.56,  
no.12 p.2152-5

Publication Date: Dec. 1990 Country of Publication: Japan

CODEN: JJPEAD ISSN: 0912-0289

Language: Japanese Document Type: Journal Paper (JP)

Treatment: Applications (A); Practical (P)

Abstract: Pressurised polymethacrylate **capsules** of 41 microns diameter are manufactured using an electroformed precision sieve. These **capsules** are used by introducing them into the bloodstream. Their hyper/hypoechoic properties act as position sensors, and combined with high speed digital subtraction echography can be used for detailed blood flow analysis in real-time. Another use is as a pressure sensor using pressure evaluation by a projected **acoustic** wave method. Future uses envisaged are as drug delivery systems utilising their **ultrasonic** energy absorption properties.

(9 Refs) Subfile: A B

16/7/1 (Item 1 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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11172638 PMID: 9082552

**[The sono-capsule: a new method for measuring gastrointestinal motility]**

Die Sono-Kapsel: Eine neue Methode zur Messung der gastrointestinalen Motilität.

Amend M; Greiner L

Medizinische Klinik A, Klinikum Wuppertal, Universitat Witten-Herdecke.

Ultraschall in der Medizin (Stuttgart, Germany - 1980) (GERMANY) Dec  
1996, 17 (6) p274-6, ISSN 0172-4614--Print Journal Code: 8303585

Publishing Model Print

Document type: Journal Article ; English Abstract

Languages: GERMAN

Main Citation Owner: NLM

Record type: MEDLINE; Completed

PURPOSE: We developed a noninvasive procedure using **ultrasound** and a specially designed **capsule** to permit determination of transit **times** in the **gastrointestinal** tract. METHODS: The **ultrasound capsule** consisted of a latex balloon of 1 cm diameter filled with water and containing a solid metal ball. After **ingestion** the marker was visualised in the **gastrointestinal** tract at defined intervals using conventional **ultrasound** machines. The various transit **times** were determined in 10 healthy volunteers. RESULTS: On account of its artifact-in-artifact structure (cystic configuration and reverberation), the **ultrasound capsule** was first detected in the **stomach** without any difficulty. During its further passage through the **gastrointestinal** tract the location of the **capsule** in the small and large bowel could be identified on the basis of the surrounding plicae circulares and haustrations. The mean oropyloric transit **time** was 2.4 hours; passage through the small bowel took 1.5 to 3 hours, and **pyloro**-anal transit **times** between 6 and 10 hours. CONCLUSION: the **ultrasound capsule** is a suitable method for investigating the **gastrointestinal** transport. It is non-invasive and does not expose the patient to radiation.

Record Date Created: 19970402

Record Date Completed: 19970402

File 155:MEDLINE(R) 1950-2006/Aug 21

(c) format only 2006 Dialog

Set	Items	Description
S1	41860	CAPSULE OR CAPSULES
S2	473624	SWALLOW? OR INGEST? OR DEGLUTITI?? OR MOUTH OR ORAL??
S3	159531	ACOUSTIC OR SOUND? ? OR NOISE? ? OR TONE OR TONES
S4	1687747	TIME
S5	953391	RECEIVER? ? OR SENSOR OR SENSORS OR SENSING OR DETECT??? OR SENSE? ?
S6	2	S1(S)S2 AND S3 AND S4 AND S5
S7	4844	S1 AND S2
S8	1537	S7 AND S4
S9	132	S8 AND S5
S10	301698	INTESTIN?
S11	27	S9 AND S10
S12	27	S11 NOT S6
S13	267	S1(S)S3
S14	52	S4 AND S13
S15	0	S10 AND S14
S16	4	S10 AND S13
S17	6	S1(3N)ACOUSTIC? [not relevant]
S18	52219	ACOUSTIC?
S19	0	S1 AND S18 AND S4 AND S10
S20	27	S1 AND S18 AND S4
S21	25	S20 NOT S17 [not relevant]

12/7/13

DIALOG(R) File 155:MEDLINE(R)

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12666480 PMID: 10751030

Application of a biomagnetic measurement system (BMS) to the evaluation of gastrointestinal transit of intestinal pressure-controlled colon delivery capsules (PCDCs) in human subjects.

Hu Z; Mawatari S; Shibata N; Takada K; Yoshikawa H; Arakawa A; Yosida Y

Department of Pharmacokinetics, Kyoto Pharmaceutical University, Japan.

Pharmaceutical research (UNITED STATES) Feb 2000, 17 (2) p160-7,

ISSN 0724-8741--Print Journal Code: 8406521

Publishing Model Print

Document type: Clinical Trial; Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

PURPOSE: For determination of the transit time through various parts of the gastrointestinal (GI) tract, we developed a method that provides the location of disintegration and drug release. This method involves GI magnetomarkergraphy (GIMG) using a 129-channel Shimadzu vector biomagnetic measurement system (BMS). METHODS: To magnetically label the pressure-controlled colon delivery capsule (PCDC) containing 75.0 +/- 0.5 mg of caffeine as a tracer drug, small capsule caps containing 90 mg of ferric oxide powdered magnetite (Fe2O3) were attached to PCDCs. After orally administration to fasted human volunteers, saliva samples were collected hourly and salivary caffeine concentration was measured. At the same time, locations of the magnetic PCDC were detected by BMS just after the PCDCs were magnetized with the coils of a magnetic resonance imaging (MRI) system. The magnetic field distributions were analyzed and the estimated positions were shown on the MRI picture of the same subject's

abdominal structure. RESULTS: We magnetized PCDC with permanent magnets or an electromagnet before ingestion and the estimated locations of PCDC in the GI tract exhibited high estimation error. In order to increase the precision of estimated localization of PCDCs, PCDCs were magnetized within the coils of the MRI. As a result, these PCDCs had strong magnetic dipoles that were parallel to the sensor unit of BMS in every measurement, and therefore the spatial resolution of the PCDC's two-dimensional positions in the organs of the GI tract was within a range of several millimeters. CONCLUSIONS: GIMG is a powerful tool for the study of colon delivery efficiencies of PCDCs. The main advantage of GIMG is the capability to obtain even more detailed knowledge of the behavior and fate of solid pharmaceutical formulations during GI passage.

Record Date Created: 20000605

Record Date Completed: 20000605

File 350:Derwent WPIX 1963-2006/UD=200653

(c) 2006 The Thomson Corporation

File 347:JAPIO Dec 1976-2005/Dec(Updated 060404)

(c) 2006 JPO & JAPIO

Set	Items	Description
S1	87742	CAPSULE? ? OR MICROCAPSULE? ?
S2	63096	(ACOUSTIC OR ULTRASONIC OR ULTRASOUND OR RF OR RADIOFREQUENCY OR RADIO() FREQUENCY) (1W) (SIGNAL? ? OR TRANSDUCER? ? OR TRANSMITTER? OR TRANSMISSION?)
S3	3266324	TIME OR TIMING
S4	42254	GASTROINTESTINAL OR GASTRO() INTESTINAL OR (DIGESTIVE OR GI- ) () TRACT? ? OR COLON OR DUODEN?? OR ILEUM OR JEJUN??
S5	55749	ESOPHAG? OR DIVERTICUL? OR PHARYN???? OR PYLOR?? OR RECTAL OR RECTUM OR STOMACH? ? OR GASTRIC
S6	2	S1 AND S2 AND S3 AND S4:S5 [1 not relevant; 1 too recent]
S7	396725	ACOUSTIC OR ULTRASONIC OR ULTRASOUND OR RF OR RADIOFREQUENCY OR RADIO() FREQUENCY
S8	183	S1(S)S7 AND S3
S9	25	S4:S5 AND S8
S10	23	S9 NOT S6
S11	7	S1(5N)S2 AND S3
S12	6	S11 NOT (S6 OR S9)
S13	11	S1(S)S2(S)S4:S5
S14	11	S13 NOT (S6 OR S9 OR S11)

10/5/16 (Item 16 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0012969983 - Drawing available

WPI ACC NO: 2003-047299/200304

Related WPI Acc No: 2003-874928

XRPX Acc No: N2003-037241

**Miniature ingestible capsule to perform multiple therapeutic or diagnostic operations uses outside control and pose beacon to control functions of capsule**

Patent Assignee: DUTTA S K (DUTT-I); MULLICK T (MULL-I); NAIR P P (NAIR-I); NAIR R (NAIR-I)

Inventor: DUTTA S K; MULLICK T; NAIR P P; NAIR R

**Patent Family** (3 patents, 96 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
WO 2002100256	A2	20021219	WO 2002US596	A	20020112	200304 B
AU 2002245234	A1	20021223	AU 2002245234	A	20020112	200452 E
AU 2002245234	A8	20051020	AU 2002245234	A	20020112	200619 E

Priority Applications (no., kind, date): US 2001759398 A 20010112

**Patent Details**

Number	Kind	Lan	Pg	Dwg	Filing Notes
WO 2002100256	A2	EN	13	5	

National Designated States,Original: AE AG AL AM AU AZ BA BB BG BR BY BZ CA CN CO CR CU CZ DM DZ EC EE GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL RO RU SD SG SI SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW

Regional Designated States,Original: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

AU 2002245234	A1	EN	Based on OPI patent	WO 2002100256
AU 2002245234	A8	EN	Based on OPI patent	WO 2002100256

**Alerting Abstract WO A2**

NOVELTY - The imaging device includes a **capsule** (40) with an anterior member (42) through which images are viewed, a lens (44) in this member, an illumination device (46), an imaging array (48), a transmitter (50), a pose beacon (52), a power source (54) and a posterior member (60). The pose beacon can provide real **time** position information of the **capsule** relative to the patient during examination for instance of the **gastrointestinal** tract to detect many forms of illness including ulcers and cancers.

DESCRIPTION - INDEPENDENT CLAIMS are included for a **capsule** and for a method of imaging the **gastrointestinal** tract.

USE - Imaging **gastrointestinal** tract to detect various illnesses.

ADVANTAGE - Reduced cost and improved convenience of treatment.

DESCRIPTION OF DRAWINGS - The drawing shows a **capsule**

42,60 Anterior and posterior members

44 Lens

46 Illumination device

48 Imaging array

52 Pose beacon

**Class Codes**

International Classification (Main): A61B, A61B-005/05

12/26,TI/2 (Item 2 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0012715046

WPI ACC NO: 2002-566778/200260

**New ultrasonic diagnosing/treating device used e.g. to confirm the status of an injected medicine-encapsulated microcapsule in the body by using images, comprises various detection and analysis units, a phasing unit and a color mapping unit**

12/5/4 (Item 1 from file: 347)

DIALOG(R)File 347:JAPIO

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05521032 \*\*Image available\*\*

**ULTRASONIC DIAGNOSING MEDICAL CAPSULE**

PUB. NO.: 09-135832 [JP 9135832 A]

PUBLISHED: May 27, 1997 (19970527)

INVENTOR(s): KUDO MASAHIRO

UCHIYAMA AKIHIKO

CHIYOU JI

SAITO KEIICHI

APPLICANT(s): OLYMPUS OPTICAL CO LTD [000037] (A Japanese Company or Corporation), JP (Japan)

APPL. NO.: 07-296989 [JP 95296989]

FILED: November 15, 1995 (19951115)

INTL CLASS: [6] A61B-008/12

JAPIO CLASS: 28.2 (SANITATION -- Medical)

JAPIO KEYWORD:R007 (**ULTRASONIC WAVES**)

**ABSTRACT**

PROBLEM TO BE SOLVED: To continuously energize a **capsule** for a long **time** without increasing the size of the **capsule** by receiving an energy signal transmitted from the outside of a human body, by means of an **ultrasonic** vibrator so as to charge a battery.



**SOLUTION:** An **ultrasonic** wave generating device 40 outside of a human body, for charging a battery 9 in an **ultrasonic capsule** 1, comprises an **ultrasonic** generating part 42 incorporating a plurality of circumferentially arranged **ultrasonic** vibrators 41, for irradiating **ultrasonic** waves to the entire periphery of the human body of a patient, and an **ultrasonic** vibrator drive circuit 43 for driving the **ultrasonic** vibrators 41. In order to charge the battery, the **ultrasonic** vibrators 41 for transmitting energy, are continuously driven by the circuit 43 in a **time** -shearing manner. The body of the patient is located in the **ultrasonic** wave generating part 42, and the **ultrasonic** waves for transmitting energy are emitted to the **ultrasonic capsule** 1 in the body. Further, **ultrasonic signals** received by an **ultrasonic** vibrator 6 are converted into electrical signals which are transmitted to the battery 9 through a switch and a power source monitor circuit.

14/5/2 (Item 2 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0015361842 - Drawing available

WPI ACC NO: 2005-712110/200573

Related WPI Acc No: 2005-589445

XRPX Acc No: N2005-584786

**Swallowable capsule for obtaining in vivo image of e.g. gastrointestinal (GI) tract, has radio frequency ( RF ) transmitter which changes transmission power level based on signal received from power level receiver**

Patent Assignee: BARUCH E (BARU-I); GLUKHOVSKY A (GLUK-I)

Inventor: BARUCH E; GLUKHOVSKY A

**Patent Family** (1 patents, 1 countries)

Patent			Application			
Number	Kind	Date	Number	Kind	Date	Update
US 20050222490	A1	20051006	US 2001306872	P	20010723	200573 B
			US 2002200548	A	20020723	
			US 2005140291	A	20050531	

Priority Applications (no., kind, date): US 2002200548 A 20020723; US 2001306872 P 20010723; US 2005140291 A 20050531

**Patent Details**

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 20050222490	A1	EN	7	2	Related to Provisional US 2001306872 Continuation of application US

2002200548

Continuation of patent US 6934573

**Alerting Abstract US A1**

**NOVELTY** - A swallowable **capsule** (40) has an **RF** transmitter (41), a power level receiver (43) and an image sensor (46). The **RF** transmitter changes a transmission power level based on a signal received from power level receiver. The **RF** transmitter sends image data using phase shift keying (PSK). The power level receiver obtains power signal from an external power level transmitter (13).

**USE** - For obtaining in vivo image of e.g. gastrointestinal (GI) tract.

**ADVANTAGE** - Enables prolonging battery life since lower average power consumption is obtained. Ensures more reliable communication since power level is increased by closed loop system in situations where estimated maximum power level is not enough to achieve reliable communication.

**DESCRIPTION OF DRAWINGS** - The figure shows the schematic diagram of an in

vivo imaging system.

- 13 External power level transmitter
- 40 **Capsule**
- 41 **RF transmitter**
- 43 Power level receiver
- 46 Image sensor

**Class Codes**

International Classification (Main): A61B-008/00  
(Additional/Secondary): A61B-001/00  
US Classification, Issued: 600102000

14/5/9 (Item 9 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0006179520 - Drawing available

WPI ACC NO: 1992-423973/199251

Related WPI Acc No: 1992-150607

XRAM Acc No: C1992-188151

XRPX Acc No: N1992-323574

**Capsule releasing drug at defined location in gastrointestinal tract - has sleeve rotatable to open position by external radio - frequency signal**

Patent Assignee: GLAXO INC (GLAX)

Inventor: CASPER R A; JOCHEM W J; MCCARTNEY M L; PARR A F

**Patent Family** (1 patents, 1 countries)

Patent			Application			
Number	Kind	Date	Number	Kind	Date	Update
US 5167626	A	19921201	US 1990591838	A	19901002	199251 B
			US 1992826407	A	19920127	

Priority Applications (no., kind, date): US 1990591838 A 19901002; US 1992826407 A 19920127

**Patent Details**

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 5167626	A	EN	14	10	C-I-P of application US 1990591838

**Alerting Abstract** US A

A medical **capsule** has a body with apertures in its circumferential wall, and a rotatable sleeve in the body with corresp. apertures. The sleeve is rotatable from a closed portion where they are in alignment.

An actuator is positioned in the sleeve for rotating it. It consists of a circuit inductively coupled to an alternating magnetic field and operatively connected with an operating member made of a shape memory alloy responsive to heat obtd. from the circuit. The operating member engages a device during heat responsive movement which rotates the sleeve member between closed and open positions and subsequently back to the closed position.

USE/ADVANTAGE - The **capsule** releases or collects a substance at a defined location in the alimentary tract, e.g. anti-ulcer or chemotherapeutic drugs. The device is easily actuated and delivers a uniform dose regardless of its orientation.

**Class Codes**

International Classification (Main): A61M-011/00  
US Classification, Issued: 604093000, 128769000, 604891100

14/5/10 (Item 1 from file: 347)

DIALOG(R)File 347:JAPIO

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08580987 \*\*Image available\*\*

**SWALLOWABLE CAPSULE**

PUB. NO.: 2005-329247 [JP 2005329247 A]  
PUBLISHED: December 02, 2005 (20051202)  
INVENTOR(s): IDAN GAVRIEL  
AVNI DOV  
GLUKHOVSKY ARKADY  
MERON GAVRIEL  
APPLICANT(s): GIVEN IMAGING LTD  
APPL. NO.: 2005-156061 [JP 2005156061]  
Division of 2001-564653 [JP 2001564653]  
FILED: May 27, 2005 (20050527)  
PRIORITY: 00 187883 [US 2000187883], US (United States of America),  
March 08, 2000 (20000308)  
INTL CLASS: A61B-001/00; A61B-005/07; G03B-015/00; G03B-015/02;  
H04N-005/225

**ABSTRACT**

PROBLEM TO BE SOLVED: To provide an ultra low power imaging device capable of obtaining an in vivo image from the inner cavity or body cavity of the images or the like of the entire length of a swallowable electronic **capsule gastrointestinal** (GI) tube passing through the digestive tubes by digestive action, collecting data, and transmitting this data to a receiving system.

SOLUTION: This device comprises an imaging device and an ultra low power **radio frequency transmitter** for transmitting signals from a CMOS imaging camera to a receiving system arranged outside of a patient. The imaging device comprises at least one CMOS imaging camera, at least one illumination source for illuminating an in vivo site, and an optical system for imaging the in vivo site on the CMOS imaging camera. This device is equipped with at least one imaging system for generating a video output which is preferably a digital output and a transmitter for transmitting this video output to the receiving system.

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14/5/11 (Item 2 from file: 347)

DIALOG(R) File 347:JAPIO

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08575777 \*\*Image available\*\*

**CAPSULE CAPABLE OF BEING SWALLOWED**

PUB. NO.: 2005-324037 [JP 2005324037 A]  
PUBLISHED: November 24, 2005 (20051124)  
INVENTOR(s): IDAN GAVRIEL  
AVNI DOV  
GLUKHOVSKY ARKADY  
MERON GAVRIEL  
APPLICANT(s): GIVEN IMAGING LTD  
APPL. NO.: 2005-156060 [JP 2005156060]  
Division of 2001-564653 [JP 2001564653]  
FILED: May 27, 2005 (20050527)  
PRIORITY: 00 187883 [US 2000187883], US (United States of America),  
March 08, 2000 (20000308)  
INTL CLASS: A61B-001/00; A61B-005/07; H04N-005/225

**ABSTRACT**

PROBLEM TO BE SOLVED: To provide an ultra-low power imaging system capable

of obtaining in-vivo images from an internal cavity or a body cavity of whole-length images and the like of an electronic **capsule gastrointestinal** (GI) tube capable of being swallowed, which goes through a digestive canal by digestive action, collects data and transmits these data to a receiving system.

SOLUTION: The apparatus comprises an imaging system and an ultra-low power **radio frequency transmitter** for transmitting signals from the CMOS imaging camera to a receiving system located outside a patient. The imaging system comprises at least one CMOS imaging camera, at least one illumination source for illuminating an in-vivo site and an optical system for imaging the in-vivo site on the CMOS imaging camera. This system is preferably equipped with at least one imaging system for forming a video output as a digital output and a transmitter for transmitting this video output to a receiving system.

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File 350:Derwent WPIX 1963-2006/UD=200653

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File 349:PCT FULLTEXT 1979-2006/UB=20060817,UT=20060810

(c) 2006 WIPO/Univentio

File 348:EUROPEAN PATENTS 1978-2006/ 200633

(c) 2006 European Patent Office

Set	Items	Description
S1	250	AU=(IMRAN M? OR IMRAN, M?)
S2	30	AU=(COLLIOU O? OR COLLIOU, O?)
S3	36	AU=(LAYMAN T? OR LAYMAN, T?)
S4	59	AU=(LAKE S? OR LAKE, S?)
S5	34	AU=(TENHOFF H? OR TENHOFF, H?)
S6	56	AU=(HOFF H? OR HOFF, H?)
S7	414	AU=(HUGHES T? OR HUGHES, T?)
S8	158833	CAPSULE? ?
S9	37	S1:S7 AND S8
S10	37	IDPAT (sorted in duplicate/non-duplicate order)
S11	34	IDPAT (primary/non-duplicate records only)

11/5/3 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0014188210 - Drawing available

WPI ACC NO: 2004-373612/

Related WPI Acc No: 2003-288772; 2004-641237; 2004-641240

XRPX Acc No: N2004-297143

**Autonomous capsule tracking system for diagnosing and treating intestinal tract, has transmitter and receiver, where transmitter transmits tracking signal to receiver between capsule and location external to patients body**

Patent Assignee: COLLIOU O K (COLL-I); HUGHES T J (HUGH-I); IMRAN M A

(IMRA-I); LAKE S L (LAKE-I); LAYMAN T W (LAYM-I); TENHOFF H (TENH-I)

Inventor: COLLIOU O K ; HUGHES T J ; IMRAN M A ; LAKE S L ; LAYMAN T W ; TENHOFF H

**Patent Family** (1 patents, 1 countries)

Patent			Application			
Number	Kind	Date	Number	Kind	Date	Update
US 20040068204	A1	20040408	US 2001892404	A	20010626	200435 B
			US 2003427672	A	20030501	

Priority Applications (no., kind, date): US 2001892404 A 20010626; US 2003427672 A 20030501

#### Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 20040068204	A1	EN	43	23	Continuation of application US 2001892404

#### Alerting Abstract US A1

NOVELTY - The system (160) has an acoustic transducer transmitter and an acoustic transducer receiver, where the transmitter transmits a tracking signal to the receiver between a autonomous **capsule** (110) and a location external to a patients body. The transmitter is located either at the **capsule** or at the external location. The receiver is located either at another **capsule** or at the external location.

DESCRIPTION - An INDEPENDENT CLAIM is also included for a method to treat an intestinal tract of a patient.

USE - Used for diagnosing and treating intestinal tract.

ADVANTAGE - The acoustic transmitter and receiver electrically stimulates the intestinal tract in combination with the system, and delivers the

treatment to an identified location of patients body, thereby providing a less invasive system.

DESCRIPTION OF DRAWINGS - The drawing shows an autonomous capsule tracking system.

101-104Pods

105Recorder

110Autonomous capsule

160Autonomous capsule tracking system

**Class Codes**

International Classification (Main): A61B-005/103

US Classification, Issued: 600593000

1/5/5

DIALOG(R)File 350:Derwent WPIX

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0014450279 - Drawing available

WPI ACC NO: 2004-641240/200462

Related WPI Acc No: 2003-288772; 2004-373612; 2004-641237

XRPX Acc No: N2004-507017

**Gastrointestinal disorder e.g. crohn's disease, diagnosing system, has autonomous capsule sized to pass through intestinal tract of patient and including impedance sensor sensing impedances at respective locations within tract**

Patent Assignee: ENTRACK INC (ENTR-N); IMRAN M A (IMRA-I)

Inventor: COLLIOU O K; IMRAN M A; LAKE S L; LAYMAN T W

**Patent Family** (3 patents, 101 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
US 20040162501	A1	20040819	US 2001892404	A	20010626	200462 B
			US 2002436154	P	20021224	
			US 2003744558	A	20031222	
WO 2005096937	A2	20051020	WO 2003US41351	A	20031222	200569 E
AU 2003299961	A1	20051027	AU 2003299961	A	20031222	200604 E

Priority Applications (no., kind, date): US 2002436154 P 20021224; US 2001892404 A 20010626; US 2003744558 A 20031222

**Patent Details**

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 20040162501	A1	EN	41	24	C-I-P of application US 2001892404 Related to Provisional US 2002436154

WO 2005096937 A2 EN

National Designated States,Original: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG UZ VC VN YU ZA ZM ZW

Regional Designated States,Original: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

AU 2003299961 A1 EN Based on OPI patent WO 2005096937

**Alerting Abstract US A1**

NOVELTY - The system has an autonomous capsule (180) sized to pass through intestinal tract of a patient and including an impedance sensor. The sensor senses impedances at respective locations within the tract. A processor coupled to the sensor receives a signal representative of an impedance sensed by the sensor and determines a change in impedance between the locations.

DESCRIPTION - An INDEPENDENT CLAIM is also included for a method for diagnosing an inflammatory gastrointestinal disorder.

USE - Used for diagnosing gastrointestinal disorder e.g. crohn's disease, and necrotic, ischemic and/or cancerous tissue of the **intestinal** tract.

ADVANTAGE - The capsule is swallowed or alternatively delivered endoscopically to a predetermined portion of the **intestinal** tract, hence provides less invasive system of diagnosis. The capsule is sized and has a conformity such that it can then readily pass through the **intestinal** tract. The capsule may pass from the stomach to the small **intestine** to the colon and exit from the **intestinal** tract through a bowel movement, permitting its recovery if desired. The capsule also may move with the food material as it passes through the **intestinal** tract and has the capability of functioning regardless of the directional orientation in the **intestinal** tract.

DESCRIPTION OF DRAWINGS - The drawing shows a partial cross-sectional view of a capsule.

180 Capsule  
184 Battery  
186a-186c **Acoustic transducers**  
187 Pump  
188 Conduit  
189 Valve

**Class Codes**

International Classification (Main): A61B-005/05, A61B-005/103

(Additional/Secondary): A61B-005/00

US Classification, Issued: 600547000, 600549000

11/5/1

DIALOG(R) File 350:Derwent WPIX

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0014450276 - Drawing available

WPI ACC NO: 2004-641237/200462

Related WPI Acc No: 2003-288772; 2004-373612; 2004-641240

XRAM Acc No: C2004-230535

XRPX Acc No: N2004-507014

**Diagnose/treatment system for diagnosing or treating a gastrointestinal condition, in an intestinal tract, comprises a capsule tracking system configured to track the location of an autonomous capsule within the intestinal tract**

Patent Assignee: ENTRACK INC (ENTR-N); IMRAN M A (IMRA-I)

Inventor: COLLIOU O K; IMRAN M A; LAKE S L; LAYMAN T W

**Patent Family** (3 patents, 104 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
US 20040162469	A1	20040819	US 2001892404	A	20010626	200462 B
			US 2002436285	P	20021224	
			US 2003745439	A	20031222	
WO 2004091361	A2	20041028	WO 2003US41352	A	20031222	200471 E
AU 2003304041	A1	20041104	AU 2003304041	A	20031222	200508 E
Priority Applications (no., kind, date): US 2002436285 P 20021224; US 2001892404 A 20010626; US 2003745439 A 20031222						

**Patent Details**

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 20040162469	A1	EN	41	26	C-I-P of application US 2001892404 Related to Provisional US 2002436285

WO 2004091361 A2 EN

National Designated States,Original: AE AG AL AM AT AU AZ BA BB BG BR BY  
BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID  
IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ  
NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA  
UG UZ VC VN YU ZA ZM ZW

Regional Designated States,Original: AT BE BG BW CH CY CZ DE DK EA EE ES  
FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL  
SZ TR TZ UG ZM ZW

AU 2003304041 A1 EN Based on OPI patent WO 2004091361

**Alerting Abstract US A1**

NOVELTY - Diagnose/treatment system for a gastrointestinal condition  
comprises:

- 1.an autonomous capsule (190) sized to pass through the intestinal tract of a patient, comprising a light source (199) configured to emit light from the capsule and a sensor configured to sense light of predetermined wavelength(s); and
- 2.a capsule tracking system configured to track location of a capsule within an intestinal tract.

DESCRIPTION - Diagnose/treatment system for diagnosing a gastrointestinal condition in an **intestinal** tract, comprises an autonomous capsule sized to pass through the **intestinal** tract of a patient, and comprising light source configured to emit light from the capsule, and a sensor configured to sense light a predetermined wavelength(s) at a first location within the **intestinal** tract, and to output a signal representative of light sensed by the sensor at the predetermined wavelength(s); a processor coupled to the sensor to receive a signal representative of light of the predetermined wavelength(s) sensed by the sensor, where the processor is configured to determine a condition(s) of a presence or absence of a substance, and a condition of tissue of the **intestinal** tract based at least in part on the signal representative of light sensed by the sensor; and a capsule tracking system configured to track location of the capsule within an **intestinal** tract.

ACTIVITY - Hemostatic.

MECHANISM OF ACTION - None given.

USE - The invention is for diagnosing a gastrointestinal condition comprising presence or absence of blood in tissue; presence of ischemic tissue; presence of necrotic tissue; and presence or absence of hemoglobin, in an **intestinal** tract (claimed). It is used for locating and treating bleeding in the **intestinal** tract.

ADVANTAGE - The invention is less invasive.

DESCRIPTION OF DRAWINGS - The figure illustrates a capsule for detecting various optical characteristics from within the **intestinal** tract.

136a-c **Acoustic transducer**

190 Autonomous **capsule**

199 Light source

**Class Codes**

International Classification (Main): A61B, A61B-005/00

US Classification, Issued: 600310000, 600476000

11/5/2

DIALOG(R) File 350:Derwent WPIX

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0014188210 - Drawing available

WPI ACC NO: 2004-373612/



Related WPI Acc No: 2003-288772; 2004-641237; 2004-641240  
XRPX Acc No: N2004-297143

**Autonomous capsule tracking system for diagnosing and treating intestinal tract, has transmitter and receiver, where transmitter transmits tracking signal to receiver between capsule and location external to patients body**

Patent Assignee: COLLIOU O K (COLL-I); HUGHES T J (HUGH-I); IMRAN M A (IMRA-I); LAKE S L (LAKE-I); LAYMAN T W (LAYM-I); TENHOFF H (TENH-I)  
Inventor: COLLIOU O K; HUGHES T J; IMRAN M A; LAKE S L; LAYMAN T W; TENHOFF H  
**Patent Family** (1 patents, 1 countries)

Patent			Application			
Number	Kind	Date	Number	Kind	Date	Update
US 20040068204	A1	20040408	US 2001892404	A	20010626	200435 B
			US 2003427672	A	20030501	

Priority Applications (no., kind, date): US 2001892404 A 20010626; US 2003427672 A 20030501

**Patent Details**

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 20040068204	A1	EN	43	23	Continuation of application US 2001892404

**Alerting Abstract US A1**

NOVELTY - The system (160) has an acoustic transducer transmitter and an acoustic transducer receiver, where the transmitter transmits a tracking signal to the receiver between an autonomous **capsule** (110) and a location external to a patients body. The transmitter is located either at the **capsule** or at the external location. The receiver is located either at another **capsule** or at the external location.

DESCRIPTION - An INDEPENDENT CLAIM is also included for a method to treat an **intestinal** tract of a patient.

USE - Used for diagnosing and treating **intestinal** tract.

ADVANTAGE - The acoustic transmitter and receiver electrically stimulates the **intestinal** tract in combination with the system, and delivers the treatment to an identified location of patients body, thereby providing a less invasive system.

DESCRIPTION OF DRAWINGS - The drawing shows an autonomous capsule tracking system.

101-104Pods

105Recorder

110Autonomous capsule

160Autonomous capsule tracking system

**Class Codes**

International Classification (Main): A61B-005/103

US Classification, Issued: 600593000

11/5/4

DIALOG(R)File 350:Derwent WPIX

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0013204516 - Drawing available

WPI ACC NO: 2003-288772/200328

Related WPI Acc No: 2004-373612; 2004-641237; 2004-641240

XRPX Acc No: N2003-229603

**Autonomous capsule location tracking system for gastro- intestinal tract treatment, has acoustic transmitter and receiver positioned either at capsule side or at patient skin**

Patent Assignee: COLLIOU O K (COLL-I); ENTRACK INC (ENTR-N); HUGHES T J (HUGH-I); IMRAN M A (IMRA-I); LAKE S L (LAKE-I); LAYMAN T W (LAYM-I);

TENHOFF H (TENH-I)

Inventor: COLLIOU O K; HUGHES T J; IMRAN M A; LAKE S L; LAYMAN T W; TENHOFF H  
**Patent Family** (5 patents, 99 countries)

Patent			Application			
Number	Kind	Date	Number	Kind	Date	Update
US 20020198470	A1	20021226	US 2001892404	A	20010626	200328 B
WO 2003001966	A2	20030109	WO 2002US19619	A	20020620	200328 E
EP 1408820	A2	20040421	EP 2002742233	A	20020620	200427 E
			WO 2002US19619	A	20020620	
AU 2002315385	A1	20030303	AU 2002315385	A	20020620	200452 E
JP 2004538055	W	20041224	WO 2002US19619	A	20020620	200502 E
			JP 2003508213	A	20020620	

Priority Applications (no., kind, date): US 2001892404 A 20010626

**Patent Details**

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 20020198470	A1	EN	43	23	
WO 2003001966	A2	EN			

National Designated States, Original: AE AG AL AM AT AU AZ BA BB BG BR BY  
BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID  
IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ  
NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG UZ VN  
YU ZA ZM ZW

Regional Designated States, Original: AT BE CH CY DE DK EA ES FI FR GB GH  
GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW

EP 1408820 A2 EN PCT Application WO 2002US19619  
Based on OPI patent WO 2003001966

Regional Designated States, Original: AL AT BE CH CY DE DK ES FI FR GB GR  
IE IT LI LT LU LV MC MK NL PT RO SE SI TR

AU 2002315385 A1 EN Based on OPI patent WO 2003001966  
JP 2004538055 W JA 129 PCT Application WO 2002US19619  
Based on OPI patent WO 2003001966

**Alerting Abstract US A1**

NOVELTY - The capsule (110) is positioned to move within the **intestinal** tract of the patient. The acoustic transmitter and receiver are positioned either at the capsule side or at the skin of the patient, for transmitting and receiving the tracking signals of the capsule.

DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

1. intestinal tract treating/diagnosing system;
2. autonomous capsule;
3. intestinal tract treatment system; and
4. intestinal tract treating/diagnosing method.

USE - For tracking location of autonomous capsule (claimed) through gastro- **intestinal** tract of patient, for diagnosis and treatment of gastro- **intestinal** tract.

ADVANTAGE - The system provides repeatable tracking of capsule, independent of location of sensors on the patient. Enables to track the location of capsule easily, thus the treatment and diagnosis of the gastro- **intestinal** tract of patient is performed effectively.

DESCRIPTION OF DRAWINGS - The figure shows the autonomous capsule location tracking system positioned in patient's body.

110 Capsule

**Class Codes**

International Classification (Main): A61B, A61B-001/00, A61B-005/00,  
A61B-005/103

(Additional/Secondary): A61B-005/117, A61J-003/07

US Classification, Issued: 600587000

File 155:MEDLINE(R) 1950-2006/Aug 21  
(c) format only 2006 Dialog  
File 5:Biosis Previews(R) 1969-2006/Aug W2  
(c) 2006 The Thomson Corporation  
File 73:EMBASE 1974-2006/Aug 22  
(c) 2006 Elsevier B.V.  
File 34:SciSearch(R) Cited Ref Sci 1990-2006/Aug W2  
(c) 2006 The Thomson Corp  
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec  
(c) 2006 The Thomson Corp

Set	Items	Description
S1	272	AU=(IMRAN M? OR IMRAN, M?)
S2	4588	AU=(COLLIOU O? OR COLLIOU, O? OR LAYMAN T? OR LAYMAN, T? OR LAKE S? OR LAKE, S? OR HUGHES T? OR HUGHES, T?)
S3	1527	AU=(TENHOFF H? OR TENHOFF, H? OR HOFF H? OR HOFF, H?)
S4	150941	CAPSULE?
S5	21	S1:S3 AND S4
S6	14	RD (unique items)
S7	14	Sort S6/ALL/PY,A [not relevant]
S8	1	ENTRACK [not relevant]
S9	0	S1:S3 AND S8